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waterfowl environments today and tomorrow

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December 1994

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WETT

waterfowl environments today and tomorrow

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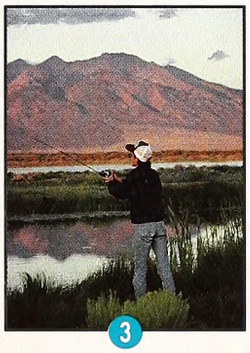

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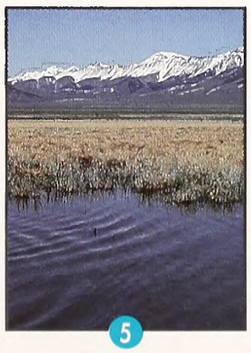

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Taking Care of Our Wetlands

Heaven is under our feet as well as over our head.

Henry David Thoreau

INTRODUCTION

Waterfowl and Wetlands: The Direct Link

Waterfowl are the most prominent and economically important group of migratory birds in North America.

And they're in trouble.

Declining populations, a trend plaguing waterfowl for more than 20 years, are directly linked to the quality and quantity of wetland habitats. Wetlands, once covering 200 million acres in the United States, have dwindled to 92 million acres today. The biological consequences are clear: destroy the habitat and the wildlife it supports also soon disappears.

The Bureau of Land Management (BLM) recognizes the problems associated with the nation's vanishing wetlands and is taking steps to preserve and improve the 20.3 million acres of wetlands it manages.

In 1987, BLM announced its strategic plan for fish and wildlife entitled, *Fish and Wildlife 2000.* Among the plan's tactics and recommendations is a list of goals and objectives for waterfowl habitat management on BLM land. A second plan, *Waterfowl Habitat Management Strategy Plan,* completed in 1988, helps transform those goals and objectives into reality. In December of 1988, BLM and Ducks Unlimited (DU) signed an agreement that called for the two organizations to work jointly to preserve and improve waterfowl habitat. The final building block in BLM's wetlands management program came in August of 1990, when a waterfowl/wetlands administrator was hired to oversee management and implementation of the elements contained in *Waterfowl Habitat Management Strategy Plan.*

This document, *Waterfowl Environments Today and Tomorrow* (WETT), is a "flyway wide" management approach employing ecosystem management principles that bring all of these efforts to where they count — to the wetlands themselves. It outlines the specific actions that BLM, with the assistance of our partners, will take to help ensure that existing wetlands and those developed, enhanced or managed by BLM provide waterfowl and other wetland-dependent wildlife with the high-quality habitat they need. (See Appendix 1.)

BLM has the major responsibilities for achieving the purposes of WETT. But the advice, cooperation and, at times, muscle, that other partners can provide will be crucial to the success of WETT.

WETT will emphasize:

- No net loss of wetlands
- Values and benefits of wetland ecosystems and their importance to the health of related ecosystems
- Increasing the quality and quantity of wetlands
- Expanding public and private partnerships
- Participating in implementation of the North American Waterfowl Management Plan (NAWMP), an international wetlands conservation strategy.

The pressure on this country's remaining wetlands is tremendous. It's through programs such as WETT that these critical areas can be conserved, not only for the wildlife dependent upon them, but for Americans everywhere who thrill at the sound of Canada geese honking overhead or the sight of a harlequin duck quietly swimming in wetland backwaters.

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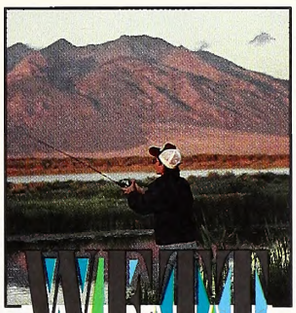
WOOD A DUCK LIVE IN A TREE?

DRAKE WOOD DUCK

Yes! And they do. Drake wood ducks, with their showy plumage and intricate markings on their heads, are considered one of the most handsome of waterfowl. Wood ducks are cavity nesters. Their affinity for trees, in fact, is what gave them their names. Nothing pleases more a wood duck looking for a nest than spotting a vacated woodpecker hole 20' to 50' above ground, close to a river, where they can feast on waterside plants, acorns and other mast.

Wood ducks don't coddle their young much. Shortly after hatching, female wood ducks lure their young to the edge of the nest by whistling and entice them to jump. Even without feathers, few of the ducklings are hurt.

Call it their first lesson in the school of hard knocks!



WETMT
waterfowl environments today and tomorrow

CHAPTER ONE

The Dollars and Cents of Waterfowl Resources

Ecotourism and hunting are popular in this country — and good business, too. Together, they accounted for $59 billion in spending according to the 1991 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

The survey also notes that almost 14.1 million people over the age of 16 hunt each year in the United States. It's estimated that in 1991 hunting accounted for direct expenditures of $12.3 billion nationwide. Hunting migratory waterfowl accounted for 21 percent of the participation, equating to an expenditure estimated at $2.6 billion.

Other economic benefits of wetlands are important, too. "Non-consumptive" activities such as viewing and photographing wildlife are skyrocketing in popularity, with more people by far participating in them than traditional hunting and fishing pursuits. Non-consumptive activities pack an impressive financial wallop. In the 1991 U.S. Fish and Wildlife Service national survey, 64 percent of the estimated 19.1 million people who participated in non-consumptive wildlife activities viewed or photographed migratory waterfowl and shore birds.

WATERFOWL HUNTING

WETMT

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ALL IN THE FAMILY

CANADA GEESE

Canada geese mate for life and often return to the same migration and winter grounds, creating highly localized populations. The annual spring return to their historic breeding grounds resemble waterfowls' version of a family reunion, with many of the geese returning to the exact area where adult pairs nested and their trailing young were born the year before.

CHAPTER TWO

The WETT Strategy

WETT is a simple concept. It identifies large geographic areas important to the life cycle of migratory waterfowl and wetland-dependent wildlife, in effect defining a flyway-wide management approach. This approach considers ecoregion and ecosystem needs by assessing the quality of the various wetland types and their associated riparian and upland habitats throughout these regions. The strategy then is to develop integrated habitat management strategies at the resource area, district and state office level, to help offset the decline in habitat quality in these areas through creation, restoration, inventorying and monitoring, management and research. In short, the strategy is to identify important areas, find out what needs to be done, then to do it.

Another important part of the strategy is teaming up with local, state and national private organizations and agencies. By joining together, BLM and other organizations can stretch funding and labor far beyond what can be done by a single group.

The 1986 NAWMP is a policy framework agreed to by the United States, Canada and Mexico. The plan emphasizes waterfowl population objectives through a cooperative, coordinated approach that includes both private and government participants. Waterfowl population goals and strategies are designed to provide year-to-year guidance in population management. One of the plan's major innovations is the concept of "Joint Ventures." A Joint Venture is a coalition of interested groups that agree to reach certain wetland objectives within a specific area or region identified in NAWMP. BLM supports NAWMP and actively participates in several Joint Ventures — Prairie Pothole, Central Valley, Pacific Coast, and Arctic Goose. BLM is also helping to develop the Intermountain West Joint Venture, which will be the largest project of its kind in the United States. (See Appendix 2.)

BLM is participating in wetland improvement work in all states with public land. Three projects — the Cosumnes River Preserve in California, the Blanca Wetlands project in Colorado, and the Warner Wetlands in Oregon — are remarkable for their progress in restoring or creating some of the finest waterfowl habitat in North America. They exemplify visionary planning, a solid partnership base and an unwavering commitment to wetland management.

STAGING SNOW GEESE

COSUMNES RIVER PRESERVE

Less than a century ago, more than 500 square miles — 3.2 million acres — of marsh spread across the Sacramento-San Joaquin Delta. A continuous wetland corridor stretched from the North Sacramento Valley to San Francisco Bay, providing some of the best waterfowl habitat in the world.

Now, only about 200,000 acres of this once-vast wetland system remain, and 93 percent of them are unprotected. Waterfowl use has declined steadily in the area throughout the last 100 years.

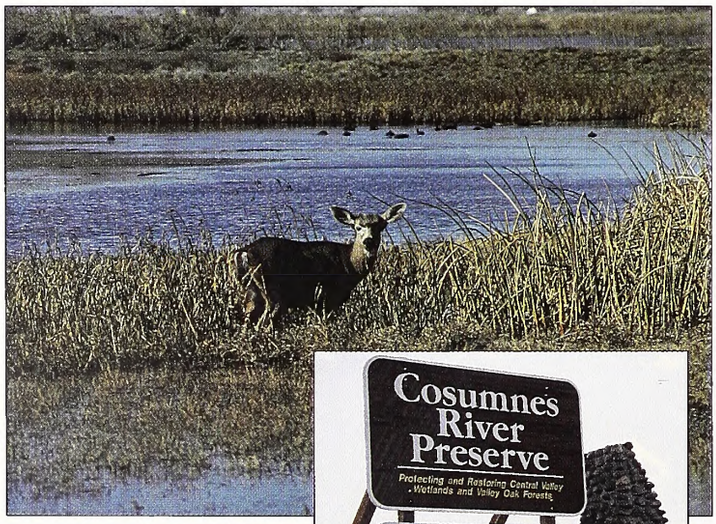
But good things are beginning to happen for wetlands in northern California. In the heart of the Central Valley, the Cosumnes River is the largest free-flowing river in the state. In 1990, BLM's Folsom Resource Area entered a partnership with DU, The Nature Conservancy, California Department of Fish & Game, and the State Wildlife Conservation Board to acquire, create, restore and manage land formerly used for farming. This land is now part of the 5,000 acre Cosumnes River Preserve Project, a cornerstone of the Central Valley Habitat Joint Venture, designed to improve and protect quality wetlands in this critical area.

SUNRISE OVER THE COSUMNES RIVER PRESERVE

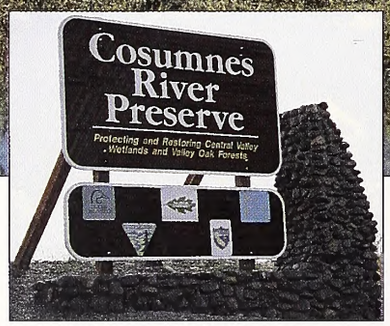
Today, the BLM Folsom Resource Area manages 1,260 acres within the preserve, a mixture of oak savanna and created seasonal and permanent wetlands. It's a popular wildlife viewing and study area, and now features a visitor's center to accommodate the throngs of people who come to the site.

And the project is getting results. Although only three years old at the time, in February of 1993 alone, more than 15,000 waterfowl were counted in the Cosumnes River Preserve.

The days of multi-million acre wetlands in northern California are gone. But BLM and its partners are taking the steps to increase wetlands wherever possible, ensuring that waterfowl will be a part of California's future.



MULE DEER AT WETLAND EDGE



COSUMNES RIVER PRESERVE

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WARNER VALLEY

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provide funding, material an
Warner Valley. The Warner
where the forces of nature s

Waterfowl numbering in
Valley each spring as they n
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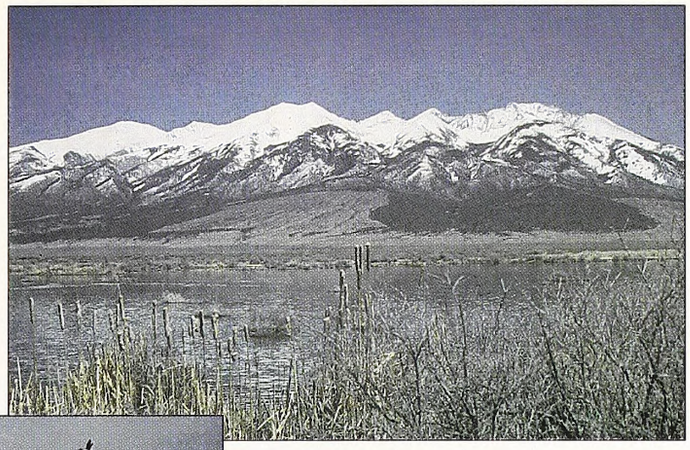
migration. Several thousand
Warner Valley.

Using conservative estin
BLM's Warner Wetlands are

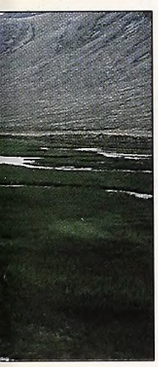


BLANCA WETLANDS

FLUSHING DUCKS

HEN & DRAKE AMERICAN WIDGEON

WETLANDS



The Warner Wetlands Area of Critical Environmental Concern covers most of the northern third of the sprawling Warner Valley in southeastern Oregon. Within its boundaries are 51,000 acres of public land administered by BLM's Lakeview District; almost 19,000 of them are wetlands.

In 1988, the Lakeview District began forming partnerships with the Izaak Walton nal Wildlife Federation, DU and the Friends of Wildlife to uscle power needed to create or restore wetlands in the ands today are a mosaic of uplands and wetlands, a place revail.

tens and hundreds of thousands funnel into the Warner along the Pacific Flyway corridors. Many will remain for months, regaining the body weight lost during the long ain each spring to nest in the fields and marshes of the

s of 35 percent nesting success or four fledglings per nest, birthplace of more than 10,000 waterfowl a year!

BLANCA WETLANDS

The 6,800 acre Blanca Wetlands, in the shadow of Colorado's towering Mt. Blanca, are managed by BLM's San Luis Valley Resource Area. Long ago, the vast San Luis Valley consisted of a network of lakes, ponds, marshes and wet meadows. Today, most of these areas are dry because of water diversion and lower groundwater tables caused by agricultural and urban development.

By restoring wetlands, BLM and other federal and state agencies also restored nesting waterfowl populations in the valley. Waterfowl surveys show that the Blanca Wetland Area annually produces 4,000 to 6,000 ducks to flight and almost 700 Canada geese. It's little wonder why the San Luis Valley is the most important waterbird production area in Colorado and the southernmost major waterfowl production area in the Central Flyway.

A unique wetland and riparian ecosystem, Blanca offers a blend of edge effect and intermingled upland habitat that attracts a diversity of species. That diversity includes the full range of plants and animals associated with alkaline marshes, freshwater marshes, and playa aquatic habitats.

The biological diversity found in Blanca was made possible by a wide-ranging coalition with a shared vision. Colorado Division of Wildlife, U.S. Fish and Wildlife Service, DU and others all helped to turn the area from a dusty plateau into the most productive waterfowl area in the southern Rockies.

These BLM projects illustrate not only the importance of wetlands but their contribution in helping to sustain and achieve waterfowl population goals established by NAWMP that provide important winter, migration and production habitat. For these very reasons, many similar BLM waterfowl habitat management efforts have, and will continue, to be developed on BLM land throughout the western United States and Alaska.

While wetlands throughout public land in the West are important to waterfowl, three "focus" areas in Alaska, California and Montana are the key sites for making WETT a success.

Alaska is important because it provides crucial habitat for breeding waterfowl populations that contribute to four major flyways, particularly the Pacific and Central Flyways. California's wintering and migration habitats are crucial to the waterfowl produced in the Central and Pacific Flyways. Montana has important nesting habitat within the Prairie Pothole region and contributes to waterfowl populations in both the Pacific and Central Flyways. Together, these habitats are essential to help meet waterfowl population goals set in NAWMP.

One swallow does not make a summer, but one skein of geese, cleaving the murk of a March thaw, is the spring.

Aldo Leopold

CANADA GOOSE BROOD

CHAPTER THREE

Implementation Strategies

This section specifies the steps to achieve the wetland and waterfowl management goals outlined by the Waterfowl/ Habitat Management Strategy Plan.

Designate a State Waterfowl/ Wetlands Coordinator

Within each BLM state, a person will be responsible for coordinated wetland management. These coordinators will be responsible for assisting waterfowl/wetland administration in implementation of WETT in their BLM state, district and resource area offices. Additionally, the coordinator will:

- Participate in Joint Ventures, and coordinate work with other agencies and private organizations to ensure the integration and compatibility with other BLM ecosystem management plans.
- Develop statewide goals, objectives and plans for waterfowl habitat management.
- Cooperatively establish waterfowl management priorities with partners.
- Provide assistance in project design, including inventories and monitoring, and establish technical standards as needed.
- Identify the performance measures needed to assure the most value is received for the money invested.
- Participate as a member of the WETT Technical Advisory Team.

Inventory and Evaluate Habitat

Inventories will determine the status of wetland ecosystems within large ecoregions. These ecosystems, identified in the Waterfowl Habitat Management Strategy Plan as Waterfowl Habitat Management Areas (WHMAs), will be given high priority in each state. WHMAs will be inventoried and habitat conditions documented to identify improvement potential and opportunities for cooperative efforts.

Data from inventories will be recorded in a digital format suitable for BLM's Geographic Information System (GIS). The information will be available at state and district offices and can be used to prepare ecoregion and ecosystem management plans that will identify what is necessary to maintain, enhance or increase waterfowl habitat. This information also will be shared with other state and federal wildlife management agencies.

Improve and Expand Habitat

Habitat improvement needs and expansion opportunities will be identified and prioritized in WHMAs. Preference will be given to areas of concern and cooperative projects that are identified in NAWMP.

"Showcase" projects — those that have high public visibility, the greatest benefit to waterfowl, and make best use of funding also

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NOT ALL THEY'RE QUACKED UP TO BE

DRAKE NORTHERN PINTAIL

Not all ducks quack. Several species, such as wigeon, pintail, and teal — whistle or peep. The common eider's call could be described as a low, slurred moan. Oldsquaws have a yodel-like whistle, while the call of a scaup sounds like, well, "Scaup!" Then there's the ruddy duck, which practically makes no sound at all.

will be identified. Many of these will be cooperative projects with organizations such as DU, The Nature Conservancy, and local and state agencies, and may be funded on a cost-share basis.

Livestock grazing modifications, prescribed fire and vegetation manipulation are a few waterfowl management techniques that will be used to improve waterfowl breeding, migration, and wintering habitat that are critical to the life cycle of waterfowl.

Habitat Maintenance

Maintenance agreements with state wildlife agencies or conservation organizations will be developed. BLM will emphasize that all structures designed to improve or manage wetlands (water delivery systems, water control structures, fencing, pumping systems, and so forth) must be maintained. Other habitat improvements, such as plantings, vegetative manipulations, and discing, will also be used to help improve and sustain desired habitat health.

Acquisition and Exchanges

Acquisitions of wetlands not included in land-use plans should be addressed. Land-use plans for private property should be studied to determine potential zoning changes that may be incompatible with future waterfowl/wetland habitat development on nearby or adjoining public land.

Land exchanges need to be prioritized and coordinated with cooperators such as The Nature Conservancy and Trust for Public Lands. Further, BLM state offices should develop agreements with Farmers Home Administration to help facilitate conservation easements and fee title transfers to BLM. They should also develop procedures for transferring title or conservation easements involving waterfowl habitat from the Resolution Trust Corporation and General Services Administration to BLM.

Evaluate WETT Program

The progress of WETT must be periodically assessed. Part of the evaluation would come from a BLM WETT management oversight group, comprised of both administrative and technical specialists. The administrative representatives on the team will consist of BLM State Directors and the Waterfowl/Wetlands Administrator. The technical representatives will be the 13 Waterfowl/Wetland Coordinators representing each state.

An annual report would be published under the direction of the Waterfowl/Wetlands Administrator, identifying achievements and progress in reaching wetland objectives in both the Waterfowl Habitat Management Strategy Plan and in WETT.

Public Outreach and Education

Public outreach and education will be a vital step in the success of WETT. A theme, *Get WETT,* has been selected by BLM to use in outreach efforts. Target audiences will be identified through wetland use profiles and other techniques. Each district and resource area will be encouraged to conduct an annual *Get WETT* program linked to a national effort. *Get WETT* efforts will also tie in with major conservation meetings and trade shows. Materials will be developed for specific audiences. Examples include a brochure designed for children, WETT logo pins, T-shirts, hats, a WETT display, and banners. The WETT theme and wetland conservation messages can also be incorporated into other BLM publications and educational efforts. Educational materials, such as slide or video presentations, or brochures, will be developed for specific sites.

Annual Progress Review with Wetland Partners

An annual meeting between BLM and partners associated with implementing WETT, such as DU, will be held to review and evaluate progress under the WETT initiative. The meeting will serve to:

- Evaluate the progress of BLM wetland habitat restoration and enhancement projects.
- Establish methods to correct procedural problems.
- Identify potential wetland development projects by region.
- Establish and implement key strategic and procedural elements essential to facilitate the "flyway-wide management approach" identified in WETT.

WETT

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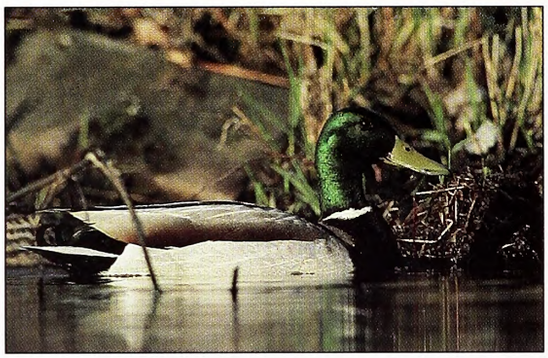
TRICKS AND TRAITS



DRAKE MALLARD

Puddler ducks, including mallards, teal, pintail and others, have distinct behavioral traits when compared to the diver duck clan, which includes redheads, canvasbacks and scaup, among others. Their distinctiveness comes in the manner in which they feed and the way they take flight.

The wing design of puddler ducks is longer and broader and the wing bones are hollow. Puddler ducks have a more slender body than those of the stubbier-winged and more compact diver ducks. Puddlers push off from the water with hollow-boned wings and assume a more vertical take-off. Diver ducks, with solid bones in their wings, leap to the top of the water and run across it, while quickly beating their wings until enough speed is reached for lift-off.

The puddler duck feeds in shallow water by tipping his tail skyward and submerging its head while feeding on aquatic animals and plants. Diver ducks plunge completely under the water surface to fed on aquatic vegetation, mollusks and other aquatic life. Diver ducks can go deep — 20 feet or more — to feed.

CHAPTER FOUR

Regional Strategies: Alaska, California, Montana

ALASKA

BLM manages 92 million acres of land in Alaska, and about 17 percent (or 16 million acres) is wetlands. Most of the Alaska wetlands are pristine remnants of what was once a vast network of wetlands stretching across North America. They are the last remaining primary waterfowl production areas in the United States still intact.

Waterfowl that breed in Alaska contribute to fall flights in all four flyways. Alaska's wetlands are crucial to maintaining and increasing migratory waterfowl populations, particularly in the Pacific and Central Flyways. Alaska's size and importance to waterfowl is hard to underestimate. (See Appendix 3.)

- About 15 percent of all the North American duck population nests in Alaska.
- Alaska has some of the most productive dabbling duck habitat in the world, as well as key production habitat for diving ducks.
- More than 5 million ducks annually depend on Alaska's wetlands, a significant portion of which are managed by BLM.
- One of North America's last major nesting concentrations of trumpeter swans occurs on BLM land in Alaska.
- A large portion of the sandhill cranes found in the Pacific Flyway, and a portion of those that frequent the Central Flyway, use BLM Alaska land for breeding and spring and fall migration staging areas.
- The last remaining nesting stronghold for pintail ducks is in Alaska. Today, pintail nesting in Alaska comprises about 50 percent of the entire North American pintail population. The U.S. population has fallen from an estimated 8 million birds in the early 1970s to 2.8 million today.
- More than 20 percent of the world's black brant population nest at Teshekpuk Lake and other lakes on BLM land in northern Alaska. These habitats are crucial for species survival.

Alaska will serve as a barometer for WETT by tracking waterfowl population trends. In cooperation with USFWS and Alaska Fish and Game, BLM will help assess waterfowl population trends, and correlate habitat capacity in Alaska with habitat conditions in wintering and migration areas. This information will be shared with other agencies and ultimately will help guide wetland resource management efforts throughout the flyways as well as in Alaska.

Management of Alaska Habitats

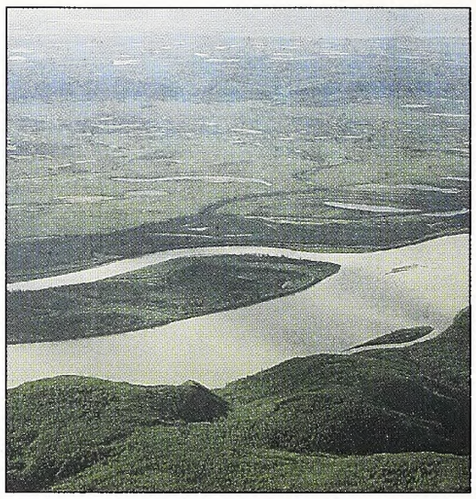
- Wetland management objectives will be established through the District Ecosystem Management Plan

processes where WHMAs are identified.

- The Alaska WETT strategy is based on total wetland ecosystem management, recognizing that factors outside of the state influence waterfowl populations. Very little habitat destruction has occurred in Alaska, yet the number of waterfowl and migratory birds has steadily declined because of disturbances and habitat loss in migration and winter habitats elsewhere in the lower 48 states. An integral part of BLM's management strategy is to collect and provide information to managers in other parts of the flyways that have an influence on Alaskan waterfowl populations.

Inventories

- Inventory is another key part of BLM's WETT plan in Alaska. BLM will inventory and map its 92 million acres of Alaska land by the year 2010 using BLM's remote sensing laboratory, housed at Utah State University, GIS technology and field investigations. When completed, the inventory information will be accessible by all BLM offices and other agencies in Alaska that manage wetlands.



ALASKA WETLANDS

Alaska Correlation With Other States

- Waterfowl in Alaska are often like the first biological domino in a chain — Alaskan waterfowl trends are symptomatic of conditions, both good and bad, throughout other North American flyways. It is essential, then, that management between Alaska and other states is correlated, so that watershed movement patterns and habitat requirements are known and provided throughout a population's distribution. To make sure this important link remains intact, BLM will determine habitat-species correlations for 16 million acres of wetland and water fowl habitat by 2010, with assistance from DU, U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and the University of Alaska. Using computer technology, predictive models will be developed to assist management throughout the Alaska waterfowl breeding population, and consequentially, in the lower 48 states as well.

Coordination

- An annual meeting including the Bureau WETT management oversight group, state and federal agencies, and interest organizations will be held to evaluate waterfowl habitat use, population health and trends. BLM will also identify new monitoring needs and studies, and incorporate them into an annual needs assessment report.

Categorize Habitats

- By 1998, BLM will identify waterfowl staging, migration, breeding and winter use areas for each important sub-population of waterfowl found in Alaska.

When the well's dry, we know the worth of water.

Benjamin Franklin

WETNT

waterfowl environments today and tomorrow

FREQUENT FLYER

BLACK BRANT

The black brant is one of the smallest members of the goose family, seldom growing to more than 17 inches in length. There's no doubt that, pound for pound, it's one of the toughest critters around.

After spending the spring and summer in Alaska, some black brants migrate as far south as the coastal bays of Mexico. If the wind is right, black brants can make the 3,000 mile journey in little more than two full days, with only a few rest stops. During the frantic flight, they can lose up to 35 percent of their body weight.

Black brants' navigational sense is equal to their penchant for speed. They fly low over the water in a long, drawn-out line, journeying a thousand miles or more without ever seeing land.

CALIFORNIA

In the last quarter-century, a greater percentage of wetlands has been lost in California's Central Valley than any other major ecological unit in North America.

California originally contained 5 million acres of permanent, seasonal and tidal wetlands, 4 million of them in the Central Valley. Today, California's Central Valley wetlands are a shadow of what they once were. About 91 percent of the wetlands in the Central Valley have lost their value as waterfowl habitat. Only about 280,000 acres of permanent wetlands remain in the Central Valley, 93 percent of which are unprotected.

The loss of habitat is mirrored in waterfowl populations in the Pacific Flyway. During the 1970s, annual population peaks of waterfowl wintering and migrating through the Central Valley reached 10-12 million birds during the fall and winter. Populations crashed from 1984 to 1987. Ground surveys in 1987 during mid-winter and nesting periods revealed a 40 percent reduction in populations over the previous 32 years. A 50 percent reduction was recorded in the Central Valley. Breeding area censuses also show a sharp decline.

Until recently, waterfowl in the Pacific Flyway remained abundant primarily because of high productivity in the Arctic and Alaskan breeding grounds. Beginning in the 1980s, nesting waterfowl have been absent in large areas of traditional Alaska and Arctic breeding areas. The same is true of pothole habitat in Montana. The trend is a harbinger of further population losses in California, where many of the birds winter.

As wetlands disappear, more pressure is put on the fewer acres of remaining habitat. This concentration often results in outbreaks of avian cholera or botulism, causing the deaths of thousands of waterfowl. Today, more than 60 percent of the waterfowl in the Pacific Flyway and more than 20 percent of all waterfowl in North America winter in the Central Valley. No where else on the North American continent are waterfowl more dependent on so few acres of wetlands.

No wonder then, that California's Central Valley is one of the five "top priority areas of major concern" identified in NAWMP. The problems of the Central Valley are being addressed by an organization called the Central Valley Habitat Joint Venture (CVHJV), which is assessing waterfowl issues and activities associated with the objectives of NAWMP. The CVHJV implementation board, of which BLM is a member, has established specific objectives. A sample of them includes:

- Protection of 80,000 acres of wetlands in the Central Valley.
- Creation of 120,000 acres of new wetlands through conversion of agriculture lands.
- Enhancement of existing wetland habitats on 290,000 acres of public and private land.

CENTRAL VALLEY SNOW GEESE

- Enhancement of habitat on 450,000 acres of agricultural lands.

BLM's goal is to achieve 10 percent of these objectives through management actions on agency land.
It will be accomplished through land exchange or other means of working with willing landowners that will allow acquisition of wetlands or land suitable for wetland conversion in the Central Valley. At the same time, restoration and enhancement projects will be started in many other areas around the state.

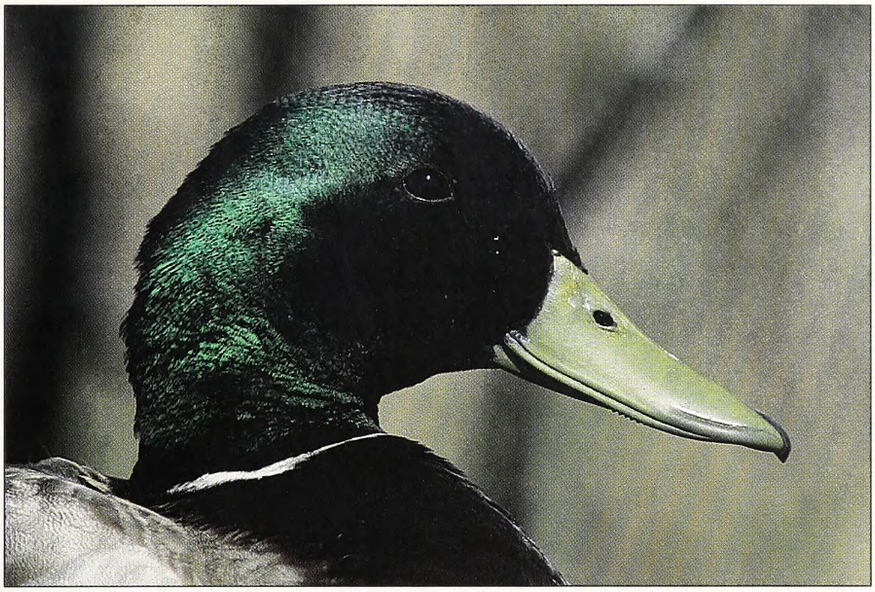
Inventory and Evaluation

- Wetlands and waterfowl habitat will be monitored and incorporated into a GIS system. The information will be used to develop projects for habitat expansion, improvement maintenance and acquisition.

- Existing inventory and GIS data will help set priorities for waterfowl and wetland areas. A standardized data base will be used to store all information in the state.

Habitat Development

- By the year 2000, 30 cooperator agreements will be developed. They will help BLM restore and manage wetlands.



DRAKE MALLARD

- Eighty-two wetland restoration projects will be started by the year 2000. Most of the projects are located within 18 "Waterfowl Management Areas" and will average 500 acres.

- By the year 2000, 22 new waterfowl/wetland habitat management plans will be developed.

Monitoring

Monitoring will focus on:

- Wetlands with potential contamination problems.

- Flooding regimes, to ensure that functional habitat is maintained.

- Waterfowl use and population trends in selected wintering and migration habitats.

- Vegetative responses and trends in selected wetland areas.

- Interdependency and interrelated requirements within an ecosystem to support waterfowl production.

Habitat Maintenance

- Habitat will be maintained on 140 future and existing wetland restoration projects by the year 2000. Projects include water delivery systems, vegetation manipulation, fire management, fencing and so forth.

Acquisition

- Waterfowl habitat will be acquired in California through exchange, donation and purchase, designed to protect existing or potential wetland sites.

WEMT

waterfowl environments today and tomorrow

INDY DRIVERS, LISTEN UP!

CANADA GEESE

Ever wonder why geese often fly in a V-formation?

Simple. It's aerodynamically smart. The formation allows the lead geese to "break the wind." The trailing geese encounter less wind resistance, helping to conserve their energy. It's the same principle that race car drivers employ. They'd much rather be just behind the race leader, to take advantage of the draft.

The geese in the lead positions occasionally trade places with others in the formation, allowing the tired leaders a well-deserved rest.

MONTANA

Migratory waterfowl habitat is important everywhere. Waterfowl habitat in Montana and the Dakotas is no exception. The glaciated valleys of western Montana and the short-grass prairie of eastern Montana and the western Dakotas provide some of the world's finest habitat for ducks, loons, geese and other wetland-dependent birds. The pothole country of northern Montana and northeastern North Dakota, though, is at risk.

The story of the pothole country is too much like the story in California: breeding habitat has been dwindling for 30 years. Within the United States, the "Prairie Pothole Region" includes parts of Minnesota, Montana, South Dakota and North Dakota. Once numbering over 20 million acres, these wetlands now total fewer than 8 million acres.

Although this region accounts for about 10 percent of the total waterfowl breeding in North America, it provides prime breeding habitat for over 50 percent of the ducks in the Central Flyway and more than 10 percent (1.5 million birds) in the Pacific Flyway.

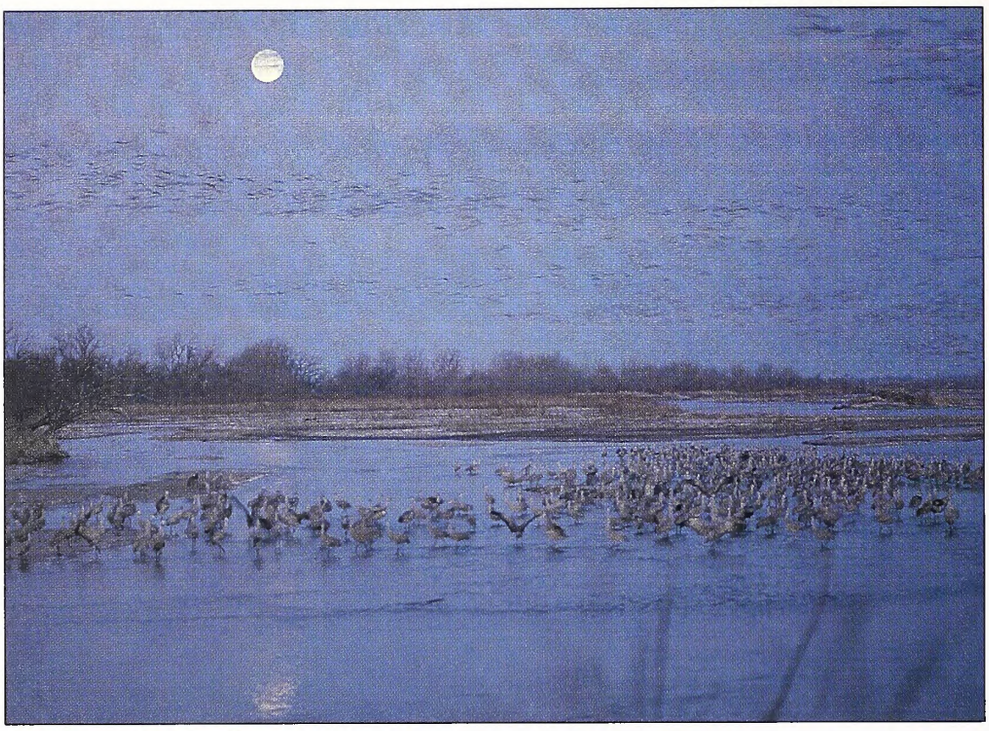
Because of the prairie pothole area's importance to waterfowl in North America, NAWMP focuses on the region. The Prairie Pothole Joint Venture, of which BLM is an active participant, was formed to help preserve, enhance and restore waterfowl habitat in the region.

BLM is a major landholder in the Prairie Pothole Region of Montana. For example, in one five-county area in north-central Montana, BLM has 2.6 million acres, about 20 percent of the land base. About 12,000 natural potholes are located on BLM land in this region.

BLM conducted and sponsored research on waterfowl habitat and its relationship to waterfowl population dynamics in the prairie potholes of Montana. The research revealed that waterfowl production could be *doubled* through proper management of stock watering ponds, reservoirs and associated upland habitat. Water importation or retention is critical to wetland creation and restoration. Where BLM holds water rights, the potential is tremendous for increasing waterfowl populations.

Work is underway to help improve the pothole region habitat. In the Milk River Basin, located in the heart of the Prairie Pothole Region of Montana, BLM and the Bureau of Reclamation have worked together for more than a decade to improve wetlands that are important to waterfowl. In 1994, BLM employed a waterfowl biologist stationed in the Malta Resource Area in Montana to implement portions of the Montana Waterfowl Management Plan and coordinate wetland enhancement and waterfowl production in the state with the Prairie Pothole Joint Venture.

DRAKE GREENWING TEAL



MIGRATING SANDHILL CRANES

Habitat Development

- Breeding pair and brood-rearing reservoirs will be developed where sites are available. BLM will actively pursue partnerships with conservation groups and state and federal agencies to fund and construct new habitat improvement projects.

- Waterfowl and riparian-wetland management objectives for reservoirs will be included in grazing allotment plans.

Inventory and Evaluation

- Existing inventory and GIS data will be evaluated to direct efforts toward priority waterfowl use areas. This analysis will be used to develop project submissions for habitat expansion, improvement, maintenance and acquisition, in accordance with ecosystem management plans.

Water Rights

- In the Prairie Pothole Region of Montana, there are about 3,900 stockponds and reservoirs, with thousands more located elsewhere in the state and the Dakotas. Water rights will be filed for reservoirs and stockponds that do not have filings. A consolidation of water rights may achieve greater benefits for waterfowl and should be considered.

- BLM has filed for water rights on 3,500 of the 12,000 potholes in Montana. About half of the remaining 8,500 potholes qualify for federal reserved water rights. The remainder, about 4,500 potholes, are unprotected.

- BLM will expand the cooperative working relationship with the Bureau of Reclamation to better assist wetland creation and restoration efforts.

- BLM will also seek cooperation with current water rights holders for waterfowl habitat enhancement.

To waste, to destroy, our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining the days of our children, the very prosperity which we ought by right to hand down to them amplified and developed.

Theodore Roosevelt

WETMT

waterfowl environments today and tomorrow

SHOVEL OR A SPOON?

HEN & DRAKE NORTHERN SHOVELER

The Northern shoveler, or "spoonie," as he is commonly called, has a bill like no other species of North American duck. His spoon-tipped bill is not used to scoop or shovel. Rather, it's used more as a spoon — to stir things up a bit. Spoonies feed in both shallow and deep water. They usually feed by partially or fully immersing their heads. As they slowly move forward, their bills sweep from side to side, barely skimming the bottom soils, freeing plankton and small aquatic animals such as fingernail clams and beetles. Shovelers are frequently seen in tight groups, rotating like a pinwheel, stirring up the surface of the water when feeding.

NORTHERN PINTAIL

It is not only fine feathers

that make fine birds.

Aesop

WETT
waterfowl environments today and tomorrow

SUMMARY

Taking Care of Our Wetlands

Wetlands of all varieties are central to sustaining the health of all life forms on earth, not just waterfowl. And it's a well-recognized fact that North American wetlands are in trouble.

Waterfowl Environments Today and Tomorrow — WETT — embraces an ethic rooted in the principles of ecosystem stewardship, one that subscribes to the management tenet that maintenance, restoration and creation of wetland habitat is a vital step toward restoring total ecological health.

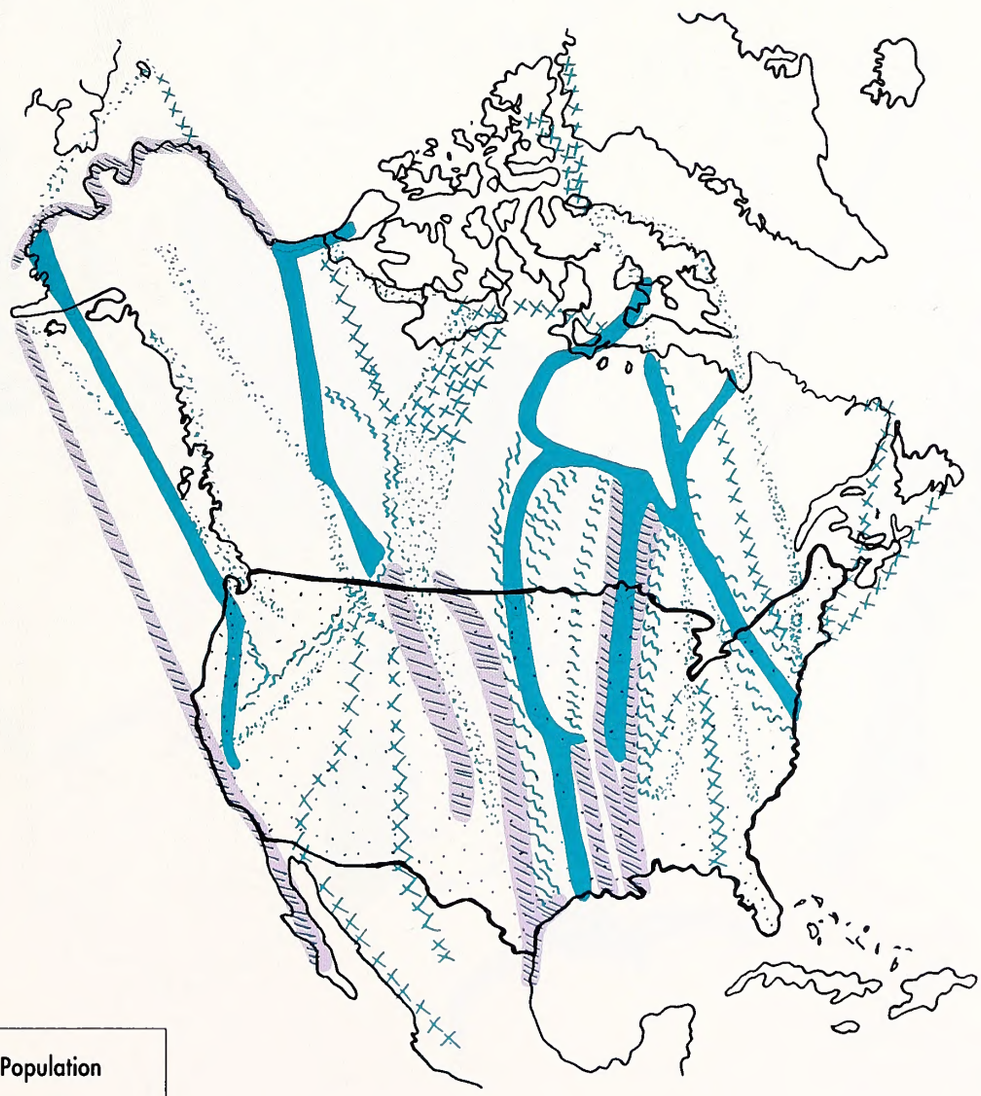
Carrying forth WETT will contribute to the social and economic health of Americans, now and in the future.

It's as simple as this: by taking care of our wetlands, as a vital part of ecosystems, we are, in a sense, ensuring the well-being of ourselves and those generations to come.

BLANCA WILDLIFE AREA

APPENDIX 1

Goose Migration Corridors

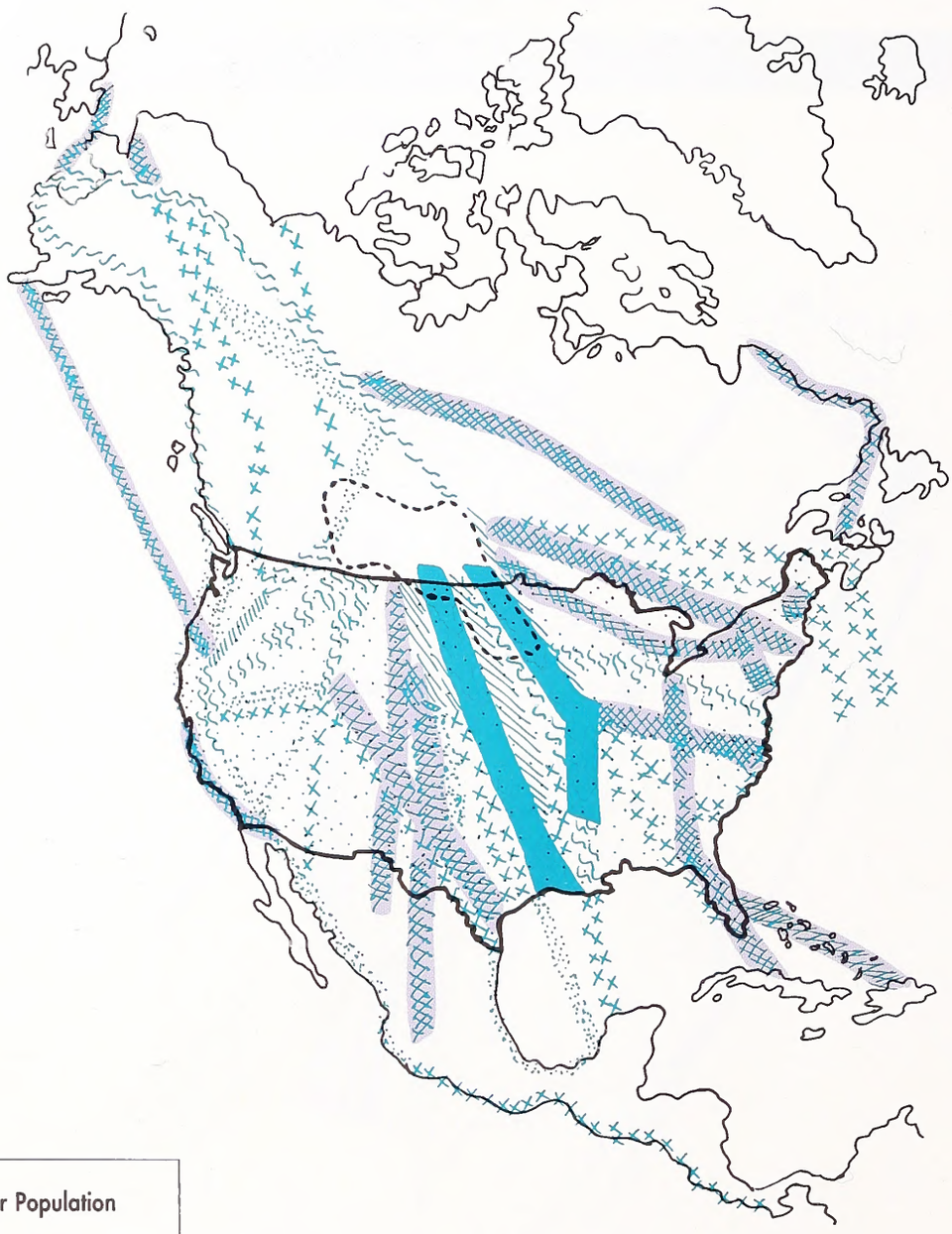


Migration Corridor Population

- 300,001 - 500,000
- 150,001 - 300,000
- 75,001 - 150,000
- 25,001 - 75,000
- 5,000 - 25,000

APPENDIX 1a

Duck Migration Corridors

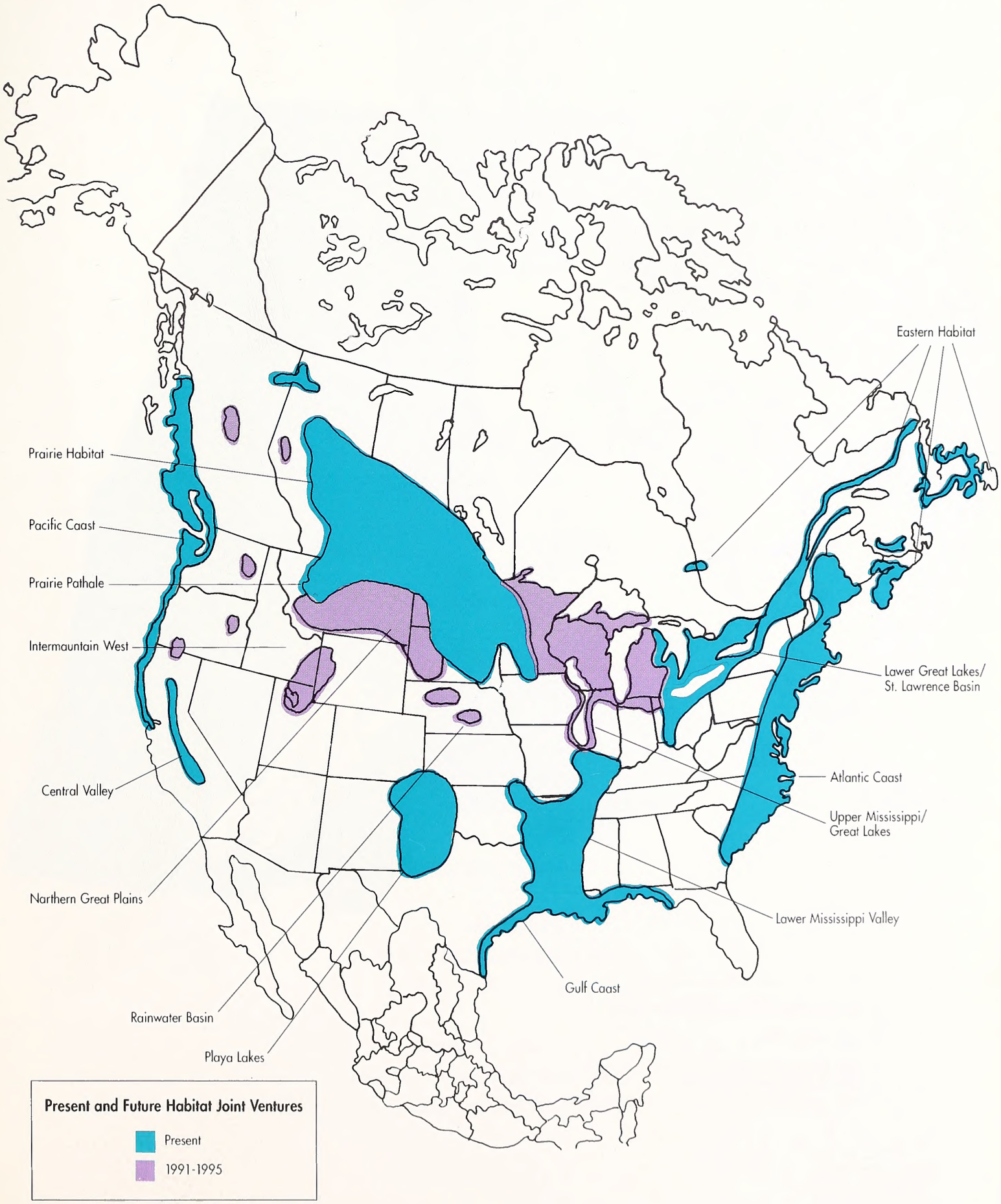


Migration Corridor Population

- 5,250,001 - 9,000,000
- 3,000,001 - 5,250,000
- 1,500,001 - 3,000,000
- 750,001 - 1,500,000
- 225,001 - 750,000
- 50,000 - 225,000
- --- Prairie Breeding Grounds

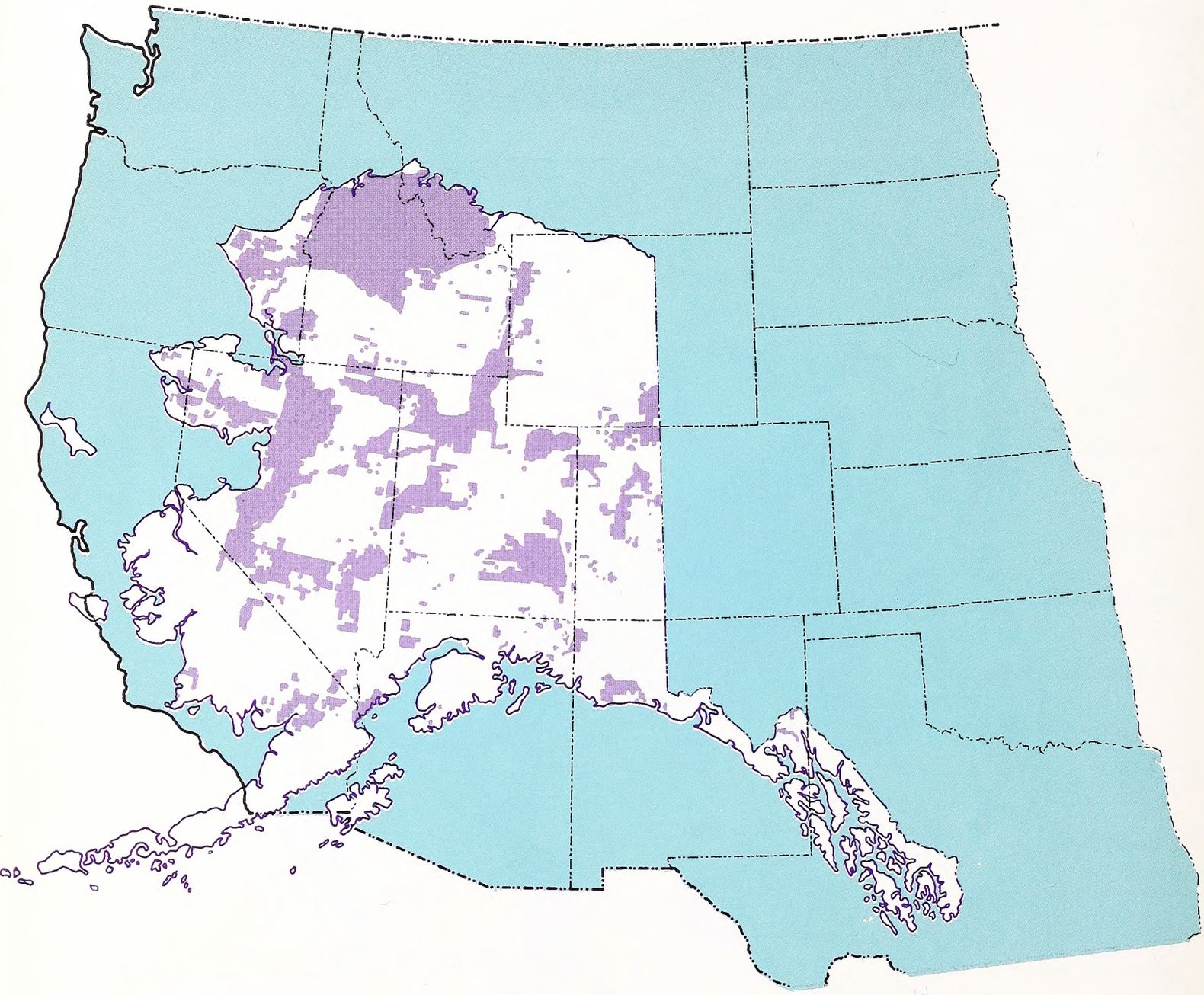
APPENDIX 2

Present and Future Habitat Joint Ventures



APPENDIX 3

Access Comparison: Alaska and Western States



Comparison: Alaska and Western States

- Western States
- Alaska Public Lands administered by the Bureau of Land Management

WETNT
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Waterfowl Staging Area

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Boy Fishing, Blanca Wildlife Area

Table of Contents: Chapter Two
Alan Sands
Challis Resource Area, BLM
1000 Springs

Table of Contents: Chapter Three
Jim Pinkering, BLM
Wintering Tundra Swans

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Mule Deer at Wetland Edge

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Migrating Waterfowl

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"Waterfowl Environments Today and Tomorrow (WETT)" is a "flyway wide" management approach employing ecosystem management principles. It outlines the specific actions that BLM, with the assistance of partners, will take to help ensure that existing wetlands and those developed, enhanced or managed by BLM provide waterfowl and other wetland-dependent wildlife with the high-qulaity habitat they need.

"Waterfowl Environments Today and Tomorrow (WETT)" is one of a series of National Strategic Plans called for in "Fish and Wildlife 2000," BLM's national plan to enhance fish and wildlife resources on public lands.

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